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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/030,402	05/20/2002	Sakae Shibusawa	04730/003001	8989
22511	7590	06/18/2004	EXAMINER	
OSHA & MAY L.L.P. 1221 MCKINNEY STREET HOUSTON, TX 77010			ASSOUAD, PATRICK J	
			ART UNIT	PAPER NUMBER
			2857	

DATE MAILED: 06/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/030,402	SHIBUSAWA ET AL. <input checked="" type="checkbox"/>	
	Examiner	Art Unit	
	Patrick J Assouad	2857	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 5/12/04
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) 27-32 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-26, 33-39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 5/12/04 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 5/12/04 is: a) ☒ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 1/5/02 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. This action is responsive to the Amendment filed 5/12/04. Claims 1-39 are pending. Claims 27-32 are withdrawn from consideration.

### ***Response to Arguments***

2. Applicant has properly amended the Drawings, the Specification, and the claims; therefore, the objections of the prior action are withdrawn.

3. Applicant's arguments filed 5/12/04 with respect to the 35 USC 103 rejection have been fully considered but they are not persuasive. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the treatment of the water content and/or soil types as so-called "higher level parameter(s)") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

4. Applicant's sole argument, the treatment of the water content and/or soil types as so-called "higher level parameter(s)" is repeated throughout his Remarks. It is completely unclear how this alleged novelty is distinctly claimed. For example, in claim 1, we see acquiring measurement data related to type of soil and water content,

followed by a calculation step involving a model, wherein the model is determined based on the soil type and water content. Given the ambiguity of the phraseology used by the Applicant in his Remarks, these steps, as claimed, do not explicitly treat water content and/or soil type as so-called "higher level parameter(s)." These steps, as claimed, are given a broad but reasonable interpretation, and are shown to have been obvious to one having ordinary skill in the art as discussed below.

5. With respect to new claims 34-39, Applicant has not presented arguments pointing out the specific distinctions believed to render the claims patentable. See MPEP 714.02 and 37 CFR 1.111.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

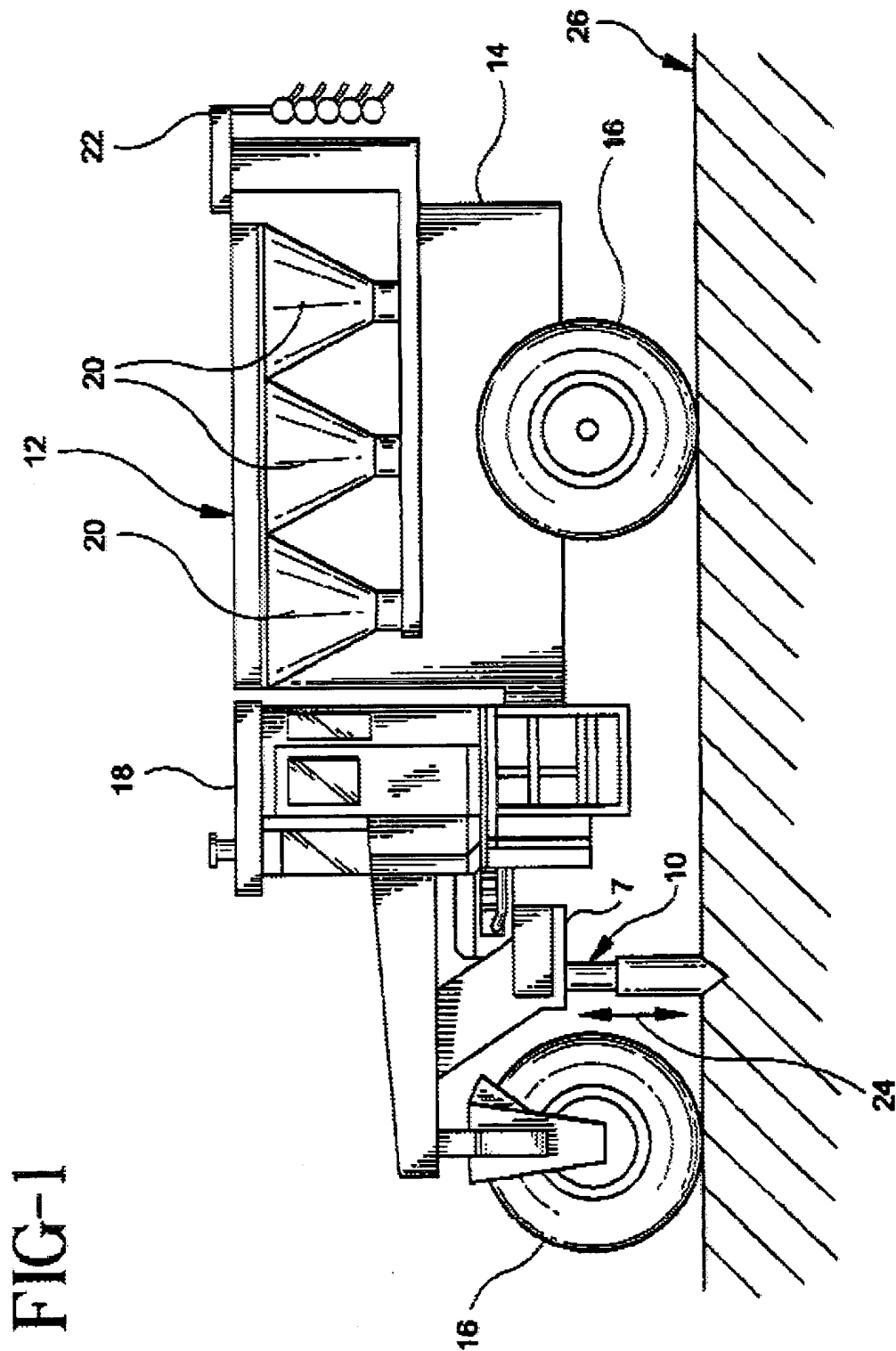
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

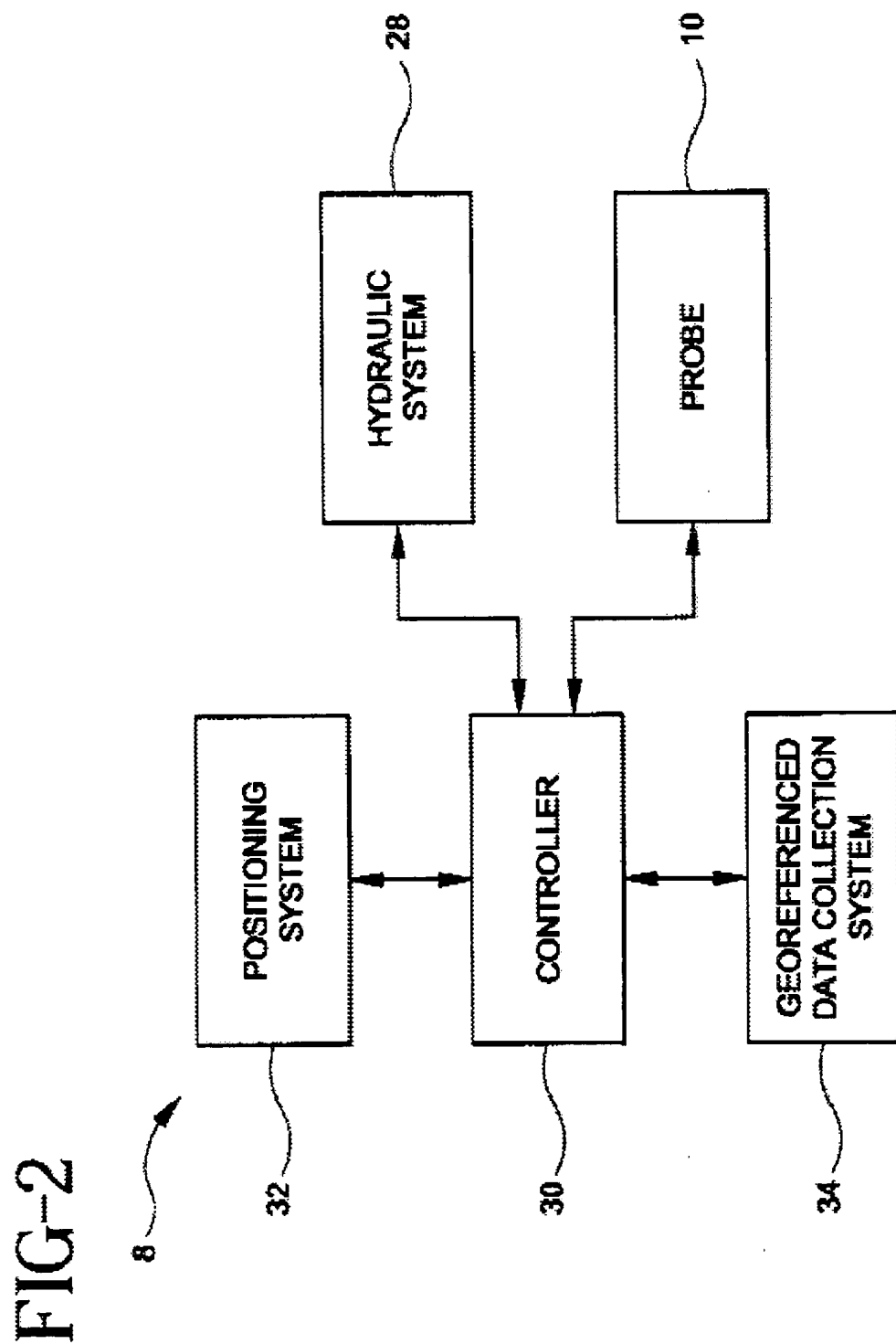
7. Claims 1-26 and 33-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Monson et al.** ('491) in view of **Bach et al.**, "Modeling and Model Verification of the Spectral Reflectance of Soils Under Varying Moisture Conditions", IEEE, 1994.

**Note:** Applicant admits in his "Prior Art Technology"-section of his Specification that various optical-based soil measurement systems exist. And in the same section, Applicant admits that it is known that the "degree of moistness of the soil" affects the aforementioned optical-based soil measurements.

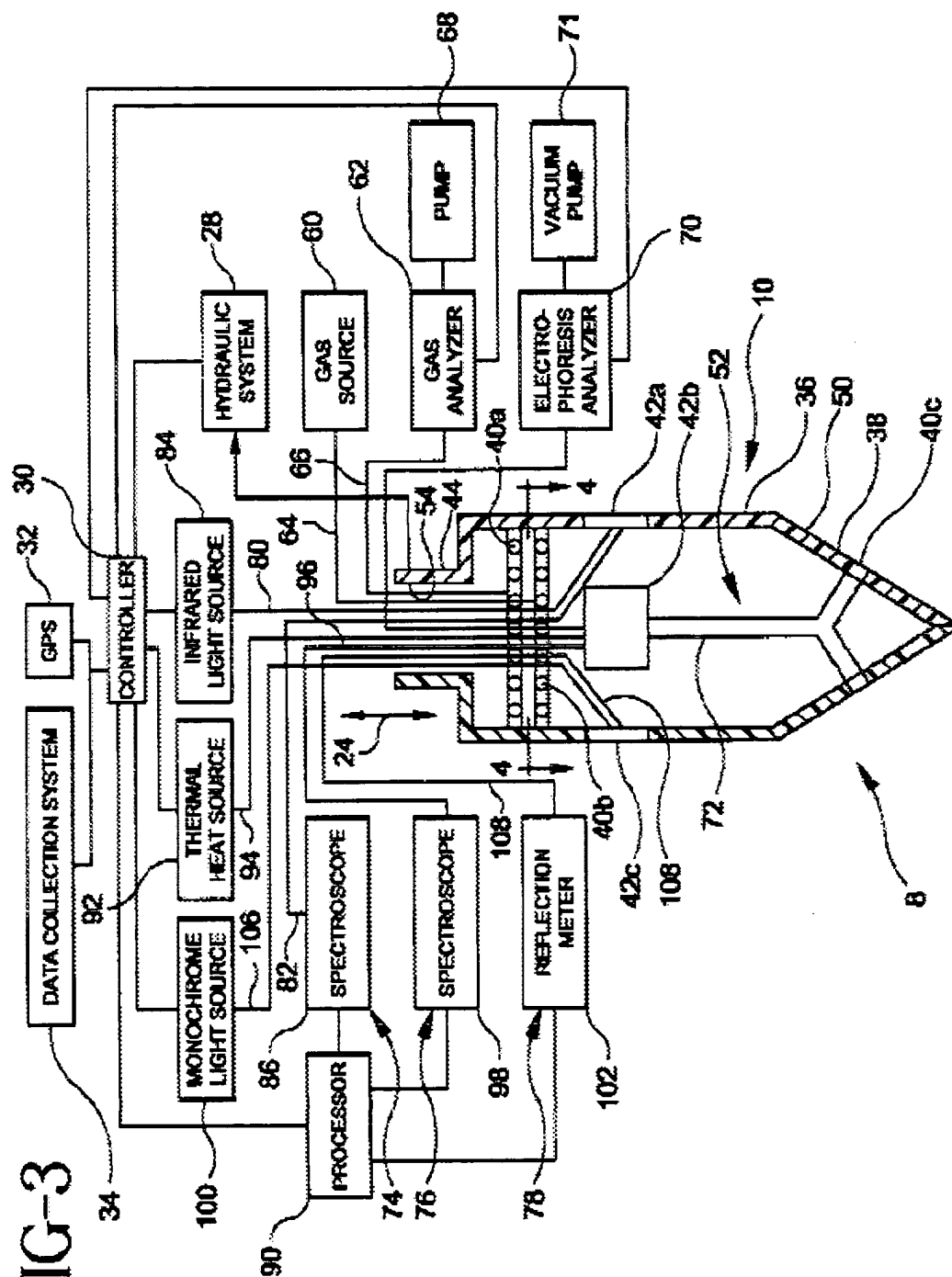
8. **Monson et al.** disclose a soil analysis assembly and system. Figs. 1- 3 of **Monson et al.** are reproduced below. More particularly, **Monson et al.** disclose:

The present invention relates to a soil analysis system for determining various soil characteristics. Various soil characteristics may include moisture content, organic matter content and the presence of nitrogen phosphate, potassium and other elements. The soil analysis system includes a plurality of testing assemblies for determining soil characteristics. The soil analysis system further includes a soil testing device or probe which is operatively inserted into the soil to support the testing assemblies. Preferably, the soil analysis system is used in cooperation with a positioning system and a data collection system for recording soil characteristic data based upon the geographic location to which the soil characteristic data relates. (Abstract)





**FIG-3**





9. The correspondence between the instant claimed invention and that of **Monson et al.** is as follows:

a) preparing storage means for storing soil measurement data correlated with at least the type of soil, information related to the water content contained in the soil, a model for calculating soil properties, and measurement conditions for obtaining measurement data that will be inputted into the model (via a soil measurement assisting device...) is seen in at least Figs. 1-3 and col. 3 of **Monson et al.**:

the data collection system 34 stores data collected from the testing assemblies for possible subsequent analysis and evaluation. The collected data is referenced relative to the field location at which the data is collected. Preferably, the collected data is georeferenced and is stored relative to the geographic latitude and longitude coordinates for the field position at which the data is collected. The controller 30 initiates operation of the hydraulic system 28 for operating the probe 10 at selected locations based upon a predetermined pattern. The positioning system 32 provides position data to the controller 30 for positioning the probe 10 for operation at the selected locations. Data collected from the probe 10 is then stored by the data collection system 34 relative to field location based upon information from the positioning system 32.

b) acquiring at least the type of soil of a measurement site, and information related to the water content contained in the soil (via a soil measuring apparatus main body...) is seen in at least Figs. 1-3 and cols. 3-4 of **Monson et al.**:

In a preferred embodiment, the probe 10 supports various testing assemblies including reflectance testing assemblies, an electrophoresis testing assembly, and a chromatography testing assembly. The chromatology testing, reflectance testing and electrophoresis testing are used to isolate elements or minerals found in the soil and to analyze various soil characteristics.

Various reflectance testing assemblies may be used for the purpose of analyzing moisture content, organic matter content as well as mineral composition of a soil sample. It is generally known that reflectance

characteristics of the soil relate to soil texture, moisture content, surface roughness, iron oxide content and organic matter content. Additionally, certain nutrients have unique reflectance characteristics and produce a unique spectral image which allows the content of these nutrients to be analyzed for a particular soil sample. It is desirable to use a combination of tests for comparison for evaluating the influence of the various factors affecting reflectance for the purpose of isolating soil characteristics relating to moisture content, organic matter content and nutrient content. The results of the combination of testing assemblies may be used to provide a more accurate determination of soil characteristics. Although it is preferred to use multiple testing assemblies for determining soil characteristics, it should be understood that it is not necessary that each of the testing assemblies described be employed and the invention should only be limited by the claims appended hereto...

...The reflectance testing assembly 74 may be used to determine moisture and nutrient content and includes optical cables 80 and 82, an infrared light source 84, a spectroscopy unit 86...

c) then accessing said storage means based on the acquired said type of soil and the information related to said water content, reading out the corresponding measurement conditions and model, and outputting said read out measurement conditions and model is seen in at least Figs. 1-3 and cols. 4 and 8 of **Monson et al.**:

...The reflected light from the soil sample is detected by the spectroscopy unit 86 via optical cable 82. The reflectance at various wavelengths is analyzed for the purpose of analyzing different attributes of the soil sample. Different attributes of the soil sample are analyzed via a processing assembly 90 to determine the content of nitrogen, potassium, phosphorus and other elements as will be described herein. The soil characteristic data such as the content of nitrogen, etc. is stored in the data collection system 34 based upon the geographic location of the soil sample as determined by the global positioning system 32.

Additionally, soil moisture data may be used to factor in moisture content for the reflectance data to isolate the influence of moisture content on the reflectance data to isolate the organic matter content. Thus, a relative organic matter content may be derived for the soil sample which may be

used for determining proper field treatments for maximum yield or performance.

10. The very minor difference between the instant claimed invention and that of **Monson et al.** lies in the claimed "model" or "modeling" step. **Monson et al.** do calculate soil properties based on a number of inputs; however, they do not explicitly use the term "model" but rather "factor in" (see, e.g. col. 8, line 20) or "determine" or "derive" the influence of moisture content on the collected soil reflectance data.

11. **Bach et al.** teach a "model for the spectral response of soils with varying moisture conditions." See at least the Abstract. **Bach et al.** also teach the "transfer of the model to imaging spectrometry data." See col. 1, pg. 2356.

12. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the "model for the spectral response of soils with varying moisture conditions" of **Bach et al.** with the "on-the-go" (col. 2, line 18) soil collection and analyzer of **Monson et al.** because such a combination compensates or perhaps even "eliminates the moisture influence on soil spectra" (Abstract of **Bach et al.**) which then allows an operator to precisely add the proper amount of soil nutrients, fertilizers, etc. which then produces better yield and profitability to the landowner.

***Conclusion***

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick J Assouad whose telephone number is 571-272-2210. The examiner can normally be reached on Tues-Friday 6:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S Hoff can be reached on 571-272-2216. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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